What is claimed is:

1. A packet transfer apparatus connected to a plurality of input lines and a plurality of output lines, for transferring an input packet received from any one of the input lines to one of the output lines specified by header information of the received packet, comprising:

a flow detector for identifying a flow to which an input packet belongs from header information of the input packet and outputting a flow bundle identifier peculiar to the identified flow or a flow bundle identifier common to the identified flow and at least another flow; and

a controller having an information table including a plurality of information entries corresponding to the flow bundle identifier, for reading out one of the information entries from said information table on the basis of the flow bundle identifier received from said flow detector and performing a predetermined computing process.

2. The packet transfer apparatus according to claim 1, further comprising a plurality of input line interfaces connected to said input lines and having the function of adding an internal header including at least an input line number to each input packet,

wherein said flow detector identifies a flow to which the input packet belongs on the basis of header information of the input packet including said internal header.

5   3. The packet transfer apparatus according to claim 1, wherein said controller executes a computing process for monitoring bandwidth of a packet flow to which the input packet belongs on the basis of header information of the input packet and the contents of

10   an information entry read out from said information table.

4. The packet transfer apparatus according to claim 1, wherein said controller executes a computing process for accumulating statistic information of a

15   packet flow to which the input packet belongs on the basis of header information of the input packet and the contents of an information entry read out from said information table.

5. The packet transfer apparatus according to

20   claim 1, wherein said flow detector comprises:

a contents addressable memory for storing a plurality of flow entries each defining a flow identifying condition and outputting an address of a flow entry having a flow identifying condition

25   matching header information of an input packet; and

an address converter for converting the address output from said contents addressable memory into a flow bundle identifier.

6. The packet transfer apparatus according to claim 2, wherein said flow detector comprises:

a contents addressable memory for storing a plurality of flow entries each defining a flow identifying condition and outputting an address of a flow entry having a flow identifying condition matching header information of an input packet; and

an address converter for converting the address output from said contents addressable memory into a flow bundle identifier.

7. The packet transfer apparatus according to claim 3, wherein said flow detector comprises:

a contents addressable memory for storing a plurality of flow entries each defining a flow identifying condition and outputting an address of a flow entry having a flow identifying condition matching header information of an input packet; and

an address converter for converting the address output from said contents addressable memory into a flow bundle identifier.

8. The packet transfer apparatus according to claim 4, wherein said flow detector comprises:

a contents addressable memory for storing a plurality of flow entries each defining a flow identifying condition and outputting an address of a flow entry having a flow identifying condition

5 matching header information of an input packet; and

an address converter for converting the address output from said contents addressable memory into a flow bundle identifier.

9. A packet transfer apparatus having a plurality

10 of input line interfaces connected to input lines, a plurality of output line interfaces connected to output lines, and a packet switching unit for transferring input packets received by said input line interfaces to one of said output line interfaces

15 specified by header information of each of said input packets, comprising:

a flow detector for receiving header information of an input packet from each of said input line interfaces, identifying a flow to which said input

20 packet belongs from the header information received, and outputting a flow bundle identifier peculiar to the identified flow or a flow bundle identifier common to the identified flow and at least another flow; and

a controller having an information table

25 including a plurality of information entries

corresponding to flow bundle identifiers, for reading out one of the information entries from said information table on the basis of the flow bundle identifier received from said flow detector and

5 performing a predetermined computing process.

10. The packet transfer apparatus according to claim 9, wherein said controller executes a computing process for monitoring bandwidth of a packet flow to which said input packet belongs on the basis of header

10 information of the input packet and the contents of an information entry read out from said information table, and notifies a monitoring result to an input line interface which has sent said header information.

11. The packet transfer apparatus according to

15 claim 9, wherein said controller executes a computing process for accumulating statistic information of a packet flow to which said input packet belongs on the basis of header information of the input packet and the contents of an information entry read out from

20 said information table.

12. The packet transfer apparatus according to claim 9, wherein said flow detector comprises:

a contents addressable memory for storing a plurality of flow entries each defining a flow

25 identifying condition and outputting an address of

a flow entry having a flow identifying condition matching header information of an input packet; and

an address converter for converting the address output from said contents addressable memory into a

5 flow bundle identifier.

13. The packet transfer apparatus according to claim 10, wherein said flow detector comprises:

a contents addressable memory for storing a plurality of flow entries each defining a flow

10 identifying condition and outputting an address of a flow entry having a flow identifying condition matching header information of an input packet; and

an address converter for converting the address output from said contents addressable memory into a

15 flow bundle identifier.

14. The packet transfer apparatus according to claim 11, wherein said flow detector comprises:

a contents addressable memory for storing a plurality of flow entries each defining a flow

20 identifying condition and outputting an address of a flow entry having a flow identifying condition matching header information of an input packet; and

an address converter for converting the address output from said contents addressable memory into a

25 flow bundle identifier.

15. A flow management method comprising the steps of:

identifying a flow to which an input packet belongs from header information of the input packet;

5   assigning a flow bundle identifier peculiar to the identified flow or a flow bundle identifier common to the identified flow and at least another flow; and

executing a predetermined computing process on the basis of the contents of an information entry 10 prepared in correspondence with the flow bundle identifier and header information of said input packet.